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A Nationwide Survey of Resource Recovery Activities

Environmental Protection Agency, Washington, D C

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MARCH 1975

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a nationwide survey of resource recovery activities

a current report

on solid waste management

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A NATIONWIDE SURVEY OF

RESOURCE RECOVERY ACTIVITIES

This publication (SW-142) was written
for the Federal solid waste management programs

by RICHARD E. HOPPER

U.S. ENVIRONMENTAL PROTECTION AGENCY

January 1975

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INTRODUCTION

This is a compilation of State and local resource recovery projects. Its purpose is to facilitate the exchange of information about systems and methods for implementing resource recovery at both the State and local levels of government.

The survey included a review of published and unpublished literature, telephone and letter contacts, and selected site visits by EPA contacts assigned to monitor the activity of individual States or communities as indicated in the report. This report represents a summary of information acquired through this monitoring activity as of January, 1975.

Abbreviations used throughout the report will be found in the appendix along with an additional list of communities recovering only ferrous metal.

The information is presented as received and in many cases has not been analyzed for accuracy or completeness. In addition, some important resource recovery projects may not be included due to a lack of information. Therefore, if you would like to suggest corrections or additions, please write to the survey's project director: Richard E. Hopper (AW-563), Resource Recovery Division, Office of Solid Waste Management Programs, U.S. Environmental Protection Agency, Washington, D.C. 20460, telephone (202) 254-7848.

DETAILED STATUS OF RECOVERY

SYSTEM IMPLEMENTATION

January 1975

Systems In Operation	Systems Selected*	Communities Committed**	Other Communities Listed In Report
Braintree, MA	Under Construction:	Wilmington, DE	Denver, CO
Charleston, WV		Dade County, FA	Washington, DC
Franklin, OH	Saugus, MA	Minneapolis, MN	Montgomery County, MD
Nashville, TN	Chicago, IL	Milwaukee, WI	Knoxville, TN
St. Louis, MO	Baltimore, MD	Akron, OH	New York, NY
East Bridgewater, MA	New Orleans, LA	Housatonic Valley, CT	Madison, WI
	Bridgeport, CT	Cleveland, OH	Honolulu, HA
	Ames, IA	Palmer Township, PA	Onondaga County, NY
		Memphis, TN	TVA: Knoxville
	Construction Not Started:	Mt. Vernon, NY	Memphis
		Westchester County, NY	Asheville
	Lowell, MA	Albany, NY	Paducah
	San Diego, CA	Lane County, OR	Muscle Shoals
	New Britain, CT	Lawrence, MA (See Commonwealth of Massachusetts)	Nashville
	St. Louis, MO (expansion)		Houston, TX
	Monroe County, NY		Montgomery County, OH
	Hempstead, NY		Hackensack Meadowlands, NJ
			Lexington, KY
			Seattle, WA

*Systems Selected - Winner of an RFP of construction contract awarded.

**Communities Committed - RFP issued, design study underway, or construction funding made available.

SUMMARY OF STATE

INVOLVEMENT IN RESOURCE RECOVERY

January 1975

States With Grant Or Loan Authority	States With Planning Or Regulation	States With Operating Authority
California	California	Connecticut
Florida	Florida	Florida
Illinois	Wisconsin	Wisconsin
Pennsylvania	Connecticut	Rhode Island
Maryland	Pennsylvania	Ohio
Minnesota	Minnesota	Michigan
New York	New York	
Tennessee	Rhode Island	
Washington	Hawaii	
Ohio	Massachusetts	
Michigan	Vermont	
	Michigan	

ACTIVITY REPORT

Project Description

LOCATION:	Akron, Ohio
EPA CONTACT:	Harry Butler
PROJECT CONTACT:	James A. Alkire, Director Department of Planning and Urban Renewal 400 Municipal Building 166 S. High Street Akron, Ohio 44308 (216) 375-2771
PROJECT TYPE:	Waterwall incineration.
TONS/DAY:	1000 (with possible expansion to 1400 tons per day)
CAPITAL COST:	$18 million.
METHOD OF FINANCING:	Municipal revenue bonds.
CONTRACTOR:	Glaus, Pyle, Schomer, Burns and DeHaven (System Designer)

Project Status

City is in the final stages of system design. City plans to go out for bids for facility construction in the near future.

When completed, the project will supply steam to the City's central business district's heating system and to B.F. Goodrich. There is also the possibility that an additional steam market will be found with the University of Akron. If this materializes, the system's throughput will be increased to 1400 tons per day.

EPA/530/SW-142
ERRATA SHEET*
(July 17, 1975)

The U.S. Environmental Protection Agency has awarded six demonstration grants for full-scale resource recovery systems. Data on these demonstration projects are presented in this bound publication (March, 1975) as follows:

Grantee	Page(s)
Baltimore, Maryland	7-8
Franklin, Ohio	17
Lowell, Massachusetts	26
San Diego, California	42
St. Louis, Missouri	45
Wilmington, Delaware	50

HOWEVER, some of the information of these six projects needs to be brought up-to-date. Hence, the attached errata sheets are provided for that purpose. Each supercedes the data on the appropriate page in this publication.

* This is intended only to present current (July 15, 1975) information on the EPA-supported projects. More current data on all the others in this bound publication will be available in a revised issue of the publication.

Office of Solid Waste Management Programs
U.S. Environmental Protection Agency

ACTIVITY REPORT

Project Description

LOCATION:	Baltimore, Maryland
EPA CONTACT:	David Sussman
PROJECT CONTACT:	Elliot Zulver Project Director Pyrolysis Plant 1801 Annapolis Road Baltimore, Maryland 21330 (301) 396-3499
PROJECT TYPE:	Pyrolsis
TONS/DAY:	1000
CAPITAL COST:	$16 million.
METHOD OF FINANCING:	EPA Grant - $6 million State loan - 4 million City funds - 6 million
(EPA Grant awarded:	September 7, 1972
CONTRACTOR:	Monsanto Enviro-Chem Systems, Inc.

Project Status

All data on pages 7 - 8 in the Nationwide Survey of Resource Recovery Activities is current. However, please note the following additional information as to the date of the EPA Demonstration Grant award indicated above under "Method of Financing."

ACTIVITY REPORT

Project Description

LOCATION:	Franklin, Ohio
EPA CONTACT:	Yvonne Garbe
PROJECT CONTACT:	B. Eichholtz, City Manager City of Franklin P. O. Box 132 Franklin, Ohio 45005
PROJECT TYPE:	Municipal solid waste is wet pulped and segregated into sorted glass, ferrous metal, aluminum, and fibers for recovery
TONS/DAY	Currently - 50 tons per day (one shift) (capacity 150 tons per day/24 hour shift)
CAPITAL COST:	$3.4 million
METHOD OF FINANCING:	EPA demonstration grant - $1.936 million
(EPA Grant Awarded:	March 1, 1969)
	Franklin - .600 million GCMI - .182 million Black Clawson - .706 million
CONTRACTOR:	Black Clawson Co. Glass Container Manufacturer Institute

Project Status:

Plant construction completed - 6/71. The total system is actually comprised of three subsystems for solid waste disposal, fiber recovery, and glass recovery respectively. In the system, a hydrapulper wet pulps the refuse, while a magnetic separator recovers the ferrous metals portion, a liquid cyclone extracts other heavy elements such as glass, and the remaining fiber is then cleaned and dewatered in the fiber recovery system. Rejected material is piped to the fluidized bed incinerator for disposal. The fiber is being sold to Logan Long Company for $45/ton while the ferrous metal is being sold to Gillerman Steel Corporation in St. Louis for $25/ton.

As of June, 1975 the glass recovery subsystem was undergoing modifications to improve the quality of the recovered glass product. Start up of

this subsystem should begin August, 1975. The demonstration grant will terminate December, 1975.

For additional information, see: The Franklin Ohio, Demonstration Report (SW-47d), David G. Arella, U.S. Environmental Protection Agency, 1974.

ACTIVITY REPORT

Project Description

LOCATION:	Lowell, Massachusetts
EPA CONTACT:	Yvonne Garbe
PROJECT CONTACT:	Paul Sheehy, City Manager City Hall Lowell, Massachusetts (617) 454-8821
PROJECT TYPE:	Standard mineral benefication techniques to separate and recover various metals and glass from incinerator residue.
TONS/DAY:	250
CAPITAL COST:	$4.119 million
METHOD OF FINANCING:	EPA Demo Grant - $2.284 million Lowell - 1.120 million State - 0.615 million
(EPA Grant Awarded:	September 7, 1972
CONTRACTOR:	Raytheon Service Co. R. Schroeder, Project Manager Burlington, Massachusetts

Project Status

Design and contract preparations completed December, 1974. It was proposed that incinerator residue from Lowell and several neighboring communities would be processed in the facility. Using a series of screens, shredders, classifiers and other ore benefication equipment the plant would extract more than 40,000 tons of products from the incinerator residue annually, resulting in revenues exceeding $1.5 million annually.

Construction was scheduled to begin in Spring 1975, however the grant was cancelled in June, 1975 because of two unresolvable problems. First, the City of Lowell was obligated to upgrade their incinerator to comply with Federal air pollution standards and to meet the grant requirements. Upgrading costs were estimated at $5.5 million, or more then the combined original costs to construct the incinerator and the proposed resource recovery facility. Thus, upgrading became prohibitive cost.

A lack of sufficient incinerator residue became a second major problem. Originally, residue from incinerators operating in nearby communities were to be brought in to supplement the volume from the Lowell incinerator. Together, these residues would provide a sufficient volume to operate the resource recovery plant for one eight-hour shift. Unfortunately, several of these communities recently closed their incinerators because of noncompliance with the air pollution standard creating a lack of sufficient residue.

EPA is currently considering other site locations to demonstrate this resource recovery method.

For additional information, see; Mineral Recovery from Solid Waste EPA's Lowell, Massachusetts Demonstration Project (SW-82d.1), David Arella and Yvonne Garbe, U.S. Environmental Protection Agency, 1975.

ACTIVITY REPORT

Project Discription

LOCATION:	San Diego County, California
EPA CONTACT:	Steven Levy
PROJECT CONTACT:	John Burke Department of Sanitation & Flood Control 5555 Overland Avenue San Diego, California (714) 565-5363
PROJECT TYPE:	Pyrolysis to produce a liquid fuel.
TONS/DAY:	200
CAPITAL COST:	$6.4 million
METHOD OF FINANCING:	EPA demonstration grant - $3.5 million
(EPA Grant Awarded:	September 7, 1972)
	County - $2.0 million Garrett Research and Development Company, Inc. $3.5 million
CONTRACTOR:	Garrett Research and Development Co.

Project Status

The Garrett Research and Development Company's flash pyrolysis process will be utilized to convert mixed municipal solid waste into an oil-like liquid fuel. A 200-ton per day plant will be built in El Cajon. Incoming waste will first be shred and air classified. The light organic fraction will be further processed to produce a fine, dry organic feedstock. This will then be converted to an oil-like fuel. Nearly one barrel of fuel is produced from each ton of solid waste.

Project is in the design stage with construction to begin in August,1975. Garrett has turnkey responsibility for design and construction of the complete facility. The liquid fuel product will be used by the San Diego Gas and Electric Company as a supplement to No. 6 Fuel Oil in an oil fired steam electric plant. Price quotes have been requested for all major equipment items. Orders have been placed for all long lead items. Plant operation is expected to begin during the summer of 1976.

ACTIVITY REPORT

Project Description

LOCATION:	St. Louis, Missouri
EPA CONTACT:	Robert Holloway
PROJECT CONTACT:	James Shea Refuse Commissioner City of St. Louis 4100 S. First St. St. Louis, Missouri 63166 (314) 353-8550
PROJECT TYPE:	Demonstration project; prepared waste as a supplementary fuel ferrous metals recovery.
TONS/DAY:	300
CAPITAL COST:	$2.9 million
METHOD OF FINANCING:	EPA Grant; general operating funds
(EPA Grant Awarded:	July 1, 1970
CONTRACTOR:	Horner & Shifrin, Inc., Consulting Engineers

Project Status

The plant initiated operations in April, 1972 and has processed over 60,000 tons of waste. Over 45,000 tons of refuse derived fuel produced by shredding and air classification have been fired by the Union Electric Company in two 140 megawatt pulverized coal-fired, steam-electric boilers at the Meramec Power Plant.

The EPA Grant is scheduled to terminate December 31, 1975. Several EPA publications are available describing evaluations of the project.

The success, to date, of the project has prompted the Union Electric Company to implement a $70 million 8,000 ton-per-day system in the St. Louis metropolitan area.

To date, UE has ordered hammermills, surge bins, air classifers pneumatic transport systems, and stationary packers, containers and container ejectors.

ACTIVITY REPORT

Project Description

LOCATION:	Wilmington, Delaware
EPA CONTACT:	Robert Holloway
PROJECT CONTACT:	Pasquale S. Canzano Department of Natural Resources and Environmental Control State of Delaware Dover, Delaware 19901 (302) 678-4781
PROJECT TYPE:	Prepared waste as a supplementary fuel to be used in an oil fired utility boiler.
TONS/DAY:	500 (One shift).
CAPITAL COST:	$20 million
METHOD OF FINANCING:	State general obligation bonds; EPA grant.
(EPA Grant Awarded:	October 26, 1972
CONTRACTOR:	Full-service contract to be bid competitively with RFP.

Project Status

EPA awarded a $9 million resource recovery demonstration grant to the State of Delaware in October, 1972. Problems regarding site selection, waste an sewage sludge availability, and EPA grant conditions delayed the project about two years.

Delaware now plans to issue the Request for Proposals in September, 1975 for design, construction, and operation by a single source under a fixed-price turn-key contract. The turn-key contract is scheduled to be signed by July, 1976 and the plant is scheduled to be fully operational in 1980.

ACTIVITY REPORT

Project Description

LOCATION:	Albany, New York
EPA CONTACT:	Harry Butler
PROJECT CONTACT:	Patrick Mahoney President, Smith & Mahoney 40 Steuben Street Albany, New York 12207 (518) 463-4107
PROJECT TYPE:	Shredded waste as a fuel.
TONS/DAY:	600
CAPITAL COST:	$6 million.
METHOD OF FINANCING:	50 percent - State grant. 50 percent - General obligation bonds.
CONTRACTOR:	Design - Smith & Mahoney Construction and operation - not yet selected.

Project Status

City is seeking New York State grant for a 600 ton per day (one shift) shredded fuel preparation system (shred, magnetic separation, air classification), which will be constructed at their existing landfill site. Fuel will be trucked into downtown Albany (18 miles) where after storage it will be burned in a faciltiy designed after the Hamilton, Ontario waterwall incinerator. The boiler will be owned and operated by the State Office of General Services and will represent an expansion of present facilities, which was required due to the construction of a new complex of State buildings.

The City will own the processing facility, but intends to have a contractor construct and operate the site. The City has completed a preliminary engineering concept report for review by the State Department of Environmental Conservation and the Office of General Services. Plans call for submission of bid documents in the Spring or Summer of 1975 with construction starting at the end of the year.

ACTIVITY REPORT

Project Description

LOCATION:	Ames, Iowa
EPA CONTACT:	Robert Holloway
PROJECT CONTACT:	J.R. Castner City Hall 5th and Kellog Streets Ames, Iowa (515) 232-7479
PROJECT TYPE:	Prepared waste as a supplementary fuel for a city owned power plant.
TONS/DAY:	200
CAPITAL COST:	$5.5 million.
METHOD OF FINANCING:	Municipal revenue bonds.
CONTRACTOR:	Gibbs, Hill, Durham and Richardson, Inc. Consulting Engineers

Project Status

Three small boilers (60 mw total) are to be modified to burn waste fuel. One unit is a tangentially-fired boiler; the other two are stokers. Supplementary waste fuel will be pneumatically fired onto the grates of the stoker fired units. One unit has an electrostatic precipitator; the other two have dry cyclones for emission control. The power plant has received a permit from the air pollution control authorities to operate experimentally. A $3.2 million construction contract was signed in Spring 1974, with construction scheduled to be completed by July 1, 1975. Construction was 40 percent complete as of November, 1974. In addition to processing waste for use as a supplementary fuel and ferrous metal recovery, aluminum will be recovered by an electromagnetic process and glass-rich screenings will be used as an aggregate for asphalt manufacture.

ACTIVITY REPORT

Project Description

LOCATION:	Baltimore, Maryland
EPA CONTACT:	David Sussman
PROJECT CONTACT:	Elliot Zulver Project Director Pyrolysis Plant 1801 Annapolis Road Baltimore, Maryland 21330 (301) 396-3499
PROJECT TYPE:	Pyrolysis
TONS/DAY:	1000
CAPITAL COST:	$16 million.
METHOD OF FINANCING:	EPA grant - $6 million. State loan - $4 million. City funds - $6 million.
CONTRACTOR:	Monsanto Enviro-Chem Systems, Inc.

Project Status

Baltimore will own and operate a 1,000 ton per day solid waste pyrolysis plant developed by Monsanto Enviro-Chem Systems, Inc. The LANDGARD system will be designed and constructed by Monsanto under a turnkey contract with moneyback performance guarantee provisions. Monsanto is guaranteeing plant availability at 85 percent, particulate emissions to meet local and Federal standards, and the residue putrescible content to be less than 0.2 percent.

The plant is being designed to handle mixed municipal solid waste, including tires and white goods. All incoming waste will be shredded to a 4-inch particle size and then conveyed to a rotary pyrolysis kiln.

The pyrolysis gases leave the kiln and will then be combusted in an afterburner. The hot afterburner exhaust gases will pass through waste heat boilers that generate 200,000 pounds of steam per hour for sale to the Baltimore Gas and Electric Company. The steam will be used for downtown heating and cooling. Boiler exhaust gases will be scrubbed, dehumidified, and released to the atmosphere.

Baltimore, Maryland
(continued)

Construction is complete and the plant is now in a shake-down phase.

The pyrolysis residue will be water quenched and ferrous metals will be separated. Water flotation and screening processes will separate the char residue, which must be landfilled (16 tons, with 50 percent moisture, for every 100 tons of solid waste input), from a glassy aggregate fraction, which will be used as aggregate for city asphalt concrete street construction.

For additional information, see: Baltimore Demonstrates Gas Pyrolysis (SW-75d.i), David B. Sussman, U.S. Environmental Protection Agency, 1974.

ACTIVITY REPORT

Project Description

LOCATION:	Braintree, Massachusetts
EPA CONTACT:	Steven Levy
PROJECT CONTACT:	John Griffith, Superintendant Braintree Thermal Waste Reduction Center Ivory Street Braintree, Massachusetts 02184 (617) 843-6209
PROJECT TYPE:	Waterwall incineration.
TONS/DAY:	240
CAPITAL COST:	$2.5 million.
METHOD OF FINANCING:	General obligation bonds.
CONTRACTOR:	Designed by Camp, Dresser and McKee.

Project Status

Plant has been operational since 1971, but until recently no steam was being sold. Community is now developing a market for steam. Recently, however, Braintree has begun to sell steam to the Weymouth Art and Leather Company (20,000 - 25,000 lbs./hr. or 400,000 lbs./day) and is also negotiating with Michigan Abrasives, Inc. for an equal supply of steam. Initially, the plant's net operating costs were $30/ton, but today the plant's net operating costs are $5/ton. The plant is presently processing 150-175 tons of waste per day on a 3 shift, 5 day per week basis.

ACTIVITY REPORT

Project Description

LOCATION:	Bridgeport, Connecticut
EPA CONTACT:	Robert Randol
PROJECT CONTACT:	Richard P. Chase CRRA; Connecticut Resources Recovery Authority 60 Washington Street Suite 1305 Hartford, Connecticut 06106 (203) 549-6390
PROJECT TYPE:	Prepared waste as a supplementary fuel; materials recovery.
TONS/DAY:	1800
CAPITAL COST:	$29 million.
METHOD OF FINANCING:	Connecticut Resources Recovery Authority
CONTRACTOR:	Garrett Research and Development

Project Status

The system will process eighteen hundred tons of solid waste a day. The dry shredded fuel fraction will be sold to United Illuminating, a subsidiary of Northeast Utilities. United Illuminating is a new market for the fuel. Previously Connecticut Light and Power had been the designated user. Groundbreaking ceremonies were held on December 10, 1974.

As of February 1, 1975 a final contract between The Connecticut Resources Recovery Authority and Garrett Research and Development had not been signed. However, a letter of intent to design, construct and operate a system was signed in September, 1974. Delays in the signing of the final contract stem from the reluctance of the contracting parties to assume different levels of risk.

Bridgeport will be the first system built in Connecticut. The interlocal agreement for delivery of solid waste (negotiated between CRRA and the communities) and the system's construction and operation contract (negotiated between CRRA and Garrett) will serve as models for future implementations.

ACTIVITY REPORT

Project Description

LOCATION:	Charleston, West Virginia
EPA CONTACT:	Steven Levy
PROJECT CONTACT:	Thomas Donnegan Union Carbide 270 Park Avenue New York, New York 10017 (212) 551-4267
PROJECT TYPE:	Gas pyrolysis.
TONS/DAY:	200
CAPITAL COST:	Unknown
METHOD OF FINANCING:	Privately financed by Union Carbide.
CONTRACTOR:	Union Carbide

Project Status

This is a private test facility being used to determine scale-up parameters and verify the technology and its economics.

Process uses oxygen in lower part of combustion chamber to produce a 300 BTU per standard cubic foot gas.

The pilot plant is presently being modified to process shredded solid waste as opposed to unprepared solid waste.

ACTIVITY REPORT

Project Description

LOCATION:	Chicago, Illinois
EPA CONTACT:	Robert Holloway
PROJECT CONTACT:	James E. Condon Department of Streets and Sanitation Bureau of Sanitation Room 207, City Hall Chicago, Illinois 60602 (312) 744-5038
PROJECT TYPE:	Waste as a supplementary fuel.
TONS/DAY:	1000
CAPITAL COST:	$16 million.
METHOD OF FINANCING:	General obligation bonds.
CONTRACTOR:	Ralph M. Parsons, Inc. Consulting Engineers and Consoer, Townsend and Associates

Project Status

Supplementary fuel will be pneumatically transported from the processing plant to the adjacent Commonwealth Edison Crawford Power Station. The system is now under construction, with the foundations presently being poured. All foundation work should be completed by March. Total construction is scheduled to be completed by January, 1976, when the start-up phase will begin.

ACTIVITY REPORT

Project Description

LOCATION:	Cleveland, Ohio
EPA CONTACT:	David Sussman
PROJECT CONTACT:	Richard Labus Commissioner of Utility Engineering 1201 Lakeside Avenue Cleveland, Ohio 44114 (216) 694-2000
PROJECT TYPE:	Not selected at this time, but output must be high temperature and pressure steam for city owned electric utility.
TONS/DAY:	1500
CAPITAL COST:	N/A
METHOD OF FINANCING:	N/A
CONTRACTOR:	N/A

Project Status

RFP for energy recovery system has been sent out. Bids will be accepted on February 5, 1975. City has requested bids for a 1500 ton per day plant as the minimum size with bids for larger plants of 1800 tons per day and 3000 tons per day also to be considered. Pre-bid conference was held in November.

ACTIVITY REPORT

Project Description

LOCATION:	Dade County, Florida
EPA CONTACT:	Robert Randol
PROJECT CONTACT:	Christopher Tyson Public Works Department Metropolitan Dade County Brickell Plaza 909 Southeast First Avenue Miami, Florida 33131 (305) 358-2700
PROJECT TYPE:	Energy Recovery
TONS/DAY:	300
CAPITAL COST:	N/A
METHOD OF FINANCING:	Pollution control revenue bonds.
CONTRACTOR:	N/A

Project Status

Dade County received 10 responses from a recent RFP. Five respondees proposed systems that would generate electricity on-site; two respondees proposed systems for processing waste as a dry shredded fuel; one proposed a pyrolysis system; one proposed a system for paper separation; and one proposed baling and a landfill. Costs for the systems (excluding baling) ranged between $35 million and $100 million. Corporations that responded were:

Waste Management	- Baling and a landfill
Black Clawson	- Generate electricity
Clean Air	- Generate electricity
Titan Environmental Services	- Generate electricity
Universal Oil Products	- Generate electricity
Wheelabrator-Frye	- Generate electricity
American Can (Using Purox System)	- Pyrolysis
CEA	- Dry fuel
Research Cottrell	- Dry fuel
Read/Grumman	- Paper separation

ACTIVITY REPORT

Project Description

LOCATION:	Denver, Colorado
EPA CONTACT:	Richard E. Hopper
PROJECT CONTACT:	Alan L. Foster, Environmental Planner Denver Regional Council of Governments 1776 South Jackson Street, #200 Denver, Colorado 80210
PROJECT TYPE:	Development of regional plan.
TONS/DAY:	N/A
CAPITAL COST:	Estimated for 1985 - $73 million.
METHOD OF FINANCING:	N/A
CONTRACTOR:	N/A

Project Status

In August of 1972 the Denver Regional Council of Governments completed its Project Reuse report which recommended the establishment of a single resource recovery center to handle all the solid waste in the five county area of metropolitan Denver. When fully operational in 1985, the facility was projected to cost $73 million and process between 600-1200 tons per day of solid waste with only 14 percent of the input going to landfill as residue. While not yet implemented, the Denver Regional Council of Governments has maintained its commitment to resource recovery and has recently formed a new task force to assess the possibility of institutional options for establishing a regional resource recovery center.

ACTIVITY REPORT

Project Description

LOCATION:	East Bridgewater, Massachusetts
EPA CONTACT:	Robert Holloway
PROJECT CONTACT:	John Reilly CEA (Combustion Equipment Associates, Inc.) 555 Madison Avenue New York, New York 10022 (212) 980-3700
PROJECT TYPE:	Prepared waste as a supplementary fuel.
TONS/DAY:	600 (Two shifts)
CAPITAL COST:	
METHOD OF FINANCING:	Private capital.
CONTRACTOR:	CEA

Project Status

Plant shakedown started Winter, 1973-74. Shakedown is continuing thru Summer, 1974. No fuel product has been sold because no coal boilers are nearby. Plant is not operating except for experimentation because there is no market for the product.

In addition, CEA is basing future contracts on Eco-Fuel II, a chemically treated, pulverized solid fuel derived from waste. The East Bridgewater plant was designed to produce Eco-Fuel I, the feed material to an Eco-Fuel II system. The East Bridgewater plant is to be modified in the future to produce Eco-Fuel II.

CEA plans Eco-Fuel II trial firings with fuel produced from a pilot plant at Weyerhaeuser Corp. (close to Brockton) and at Public Services Gas and Electric, Elizabeth, New Jersey.

ACTIVITY REPORT

Project Description

LOCATION:	Franklin, Ohio
EPA CONTACT:	Yvonne Garbe
PROJECT CONTACT:	B. Eichholtz, City Manager City of Franklin P.O. Box 132 Franklin, Ohio 45005
PROJECT TYPE:	Municipal solid waste is wet pulped and segregated into sorted glass, ferrous metal, aluminum, and fibers for recovery.
TONS/DAY:	Currently - 50 tons per day (one shift) (capacity 150 tons per day/24 hour shift)
CAPITAL COST:	$3.177 million.
METHOD OF FINANCING:	Federal share - $2.177 million. Franklin - 0.5 million. GCMI - 0.15 million. Black Clawson - 0.2 million.
CONTRACTOR:	Black Clawson Co. Glass Container Manufacturer Institute

Project Status

Completed - 6/71. The total system is actually comprised of three subsystems for solid waste disposal, fiber recovery, and glass recovery respectively. In the system, a hydrapulper wet pulps the refuse, while a magnetic separator recovers the ferrous metals portion, a liquid cyclone extracts other heavy elements such as glass, and the remaining fiber is then cleaned and dewatered in the fiber recovery system. Rejected material is piped to the fluidized bed incinerator for disposal. The fiber is being sold to Logan Long Company for $45/ton while the ferrous metal is being sold to Gillerman Steel Corporation in St. Louis for $25/ton.

For additional information, see: The Franklin, Ohio, Demonstration Report (SW- 47d), David G. Arella, U.S. Environmental Protection Agency, 1974.

ACTIVITY REPORT

Project Description

LOCATION:	Hackensack Meadowlands, New Jersey
EPA CONTACT:	Robert Holloway
PROJECT CONTACT:	George Casino Chief Engineer Hackensack Meadowlands Development Commission 1099 Wall Street, West Lyndhurst, New Jersey 07071 (201) 935-3250
PROJECT TYPE:	Prepared waste as a supplementary fuel.
TONS/DAY:	N/A
CAPITAL COST:	N/A
METHOD OF FINANCING:	N/A
CONTRACTOR:	N/A

Project Status

HMDC received 8 proposals in Fall 1973 as result of RFP. HMDC asked Stevens Institute and Fairleigh Dickinson University to review proposals. CEA was recommended.

No action was taken because of change in State administration.

HMDC has now contracted with First Boston Corporation, Sullivan & Cromwell, and Hawkins, Delafield & Wood to pursue negotiations with several of the original bidders to implement a fuel system.

Public Service Electric and Gas has expressed interest in waste fuel. PSEG signed a contract in August 1974 with CEA to burn 200 tons per day of Eco-Fuel II on a trial basis. CEA hopes to start preliminary tests with pellets within 2 months at PSEG and Weyerhaeuser (near CEA's East Bridgewater plant). Eco-Fuel II for the early burns will be produced by the pilot plant. Additional PSEG tests will be run in 1-2 years with fuel produced from a plant to be built in New Jersey.

ACTIVITY REPORT

Project Description

LOCATION:	Hempstead, New York
EPA CONTACT:	Alan Shilepsky
PROJECT CONTACT:	William Landman Commissioner of Sanitation 1600 Merrick Road Merrick, New York 11566 (516) 378-4210
PROJECT TYPE:	Wet-pulping of waste for materials and energy recovery.
TONS/DAY:	2000
CAPITAL COST:	$55 million.
METHOD OF FINANCING:	Exact form is undetermined until a contract is signed, but will probably be corporate revenue bonds.
CONTRACTOR:	Hempstead Resource Recovery Corp. (a subsidiary of Black Clawson Co.)

Project Status

A contract was signed on December 12, 1974 between Hempstead and Hempstead Resource Recovery Corporation, a subsidiary of Black Clawson Corporation. The contract stipulates that the City "put or pay" to the recovery system at least 6000 tons of solid waste per week. The contract also requires the corporation to be capable of processing 11,000 tons per week with a maximum of 3 percent residue by volume. The system will recover ferrous, aluminum and glass (if economically feasible) and produce electricity. Revenues will be shared between the corporation and the City. Dump serve fees, depending on tonnages, will range between $14.05 to $12.37 per ton.

ACTIVITY REPORT

Project Description

LOCATION:	Honolulu, Hawaii
EPA CONTACT:	Robert Randol
PROJECT CONTACT:	Kazu Hayashida Chief, Public Works Department City and County of Honolulu Honolulu, Hawaii (808) 546-7514
PROJECT TYPE:	Feasibility study for energy recovery.
TONS/DAY:	2000
CAPITAL COST:	N/A
METHOD OF FINANCING:	City - $50,000 Amfac Corporation - $50,000
CONTRACTOR:	Sunn, Low, Tom & Hara Engineering Consultants

Project Status

The City and County of Honolulu, Amfac Corporation, and the Hawaiian Electric Company have jointly funded a feasibility study to investigate the possibility of utilizing mixed refuse and cane trash for the generation of power. Amfac Corporation is one of Hawaii's largest private corporations and a major sugar cane grower. The above study was completed in December and concluded that the proposed system was both technologically feasible and economically viable, and outlined steps for its implementation.

ACTIVITY REPORT

Project Description

LOCATION:	Housatonic Valley, Connecticut
EPA CONTACT:	Robert Randol
PROJECT CONTACT:	Robert Schulz The Fourth Sink Management Group, Inc. P.O. Box 75 Kattskill Bay, New York 12844 (518) 656-9253
PROJECT TYPE:	Prepared waste as a supplementary fuel; materials recovery.
TONS/DAY:	1500
CAPITAL COST:	$35 million.
METHOD OF FINANCING:	CRRA funding requested (See State of Conn.)
CONTRACTOR:	CEA (Combustion Equipment Associates, Inc.)

Project Status

Twenty two million dollar processing plant to be located in Newtown, Conn. to prepare Eco-Fuel II. Fuel will be shipped by rail to the Pierce Power Plant in Wallingford, Conn., where a $10 million high-pressure steam generating facility will be designed and constructed by CEA.

CRRA limited to $100 million funding through FY75. Therefore, with funding of New Britain and Bridgeport, CRRA cannot now fund entire Housatonic project. CRRA likely to fund just transfer station portion, with landfilling of waste until authority extended.

ACTIVITY REPORT

Project Description

LOCATION:	Houston, Texas
EPA CONTACT:	David Sussman
PROJECT CONTACT:	John Barineau, III Browning-Ferris Industries P.O. Box 3151 Houston, Texas 77001 (713) 790-1611
PROJECT TYPE:	Paper and ferrous recovery system.
TONS/DAY:	400
CAPITAL COST:	Not known.
METHOD OF FINANCING:	Industry owned.
CONTRACTOR:	Browning-Ferris Industries (BFI)

Project Status

BFI operates the resource recovery system that processes a portion of Houston's solid waste. The plant consists of a hand picking station, a shredder, and a magnetic separator. Newspaper can be hand picked from both sides of the conveyor that feeds the shredder. The paper is picked only when market conditions make hand picking profitable. The ferrous material is sold to a local scrap dealer. The residual milled solid waste is landfilled. BFI also uses the facility to test air classification.

ACTIVITY REPORT

Project Description

LOCATION:	Knoxville, Tennessee
EPA CONTACT:	Robert Randol
PROJECT CONTACT:	Kyle Testerman, Mayor City Hall Knoxville, Tennessee (615) 639-0101
PROJECT TYPE:	Torrax type system to produce combustible gas or pelletized solid waste fuel.
TONS/DAY:	2000 (if combined with Chattanooga)
CAPITAL COST:	N/A
METHOD OF FINANCING:	TVA would own, operate and finance.
CONTRACTOR:	N/A

Project Status

Knoxville is participating in a tripartite study with TVA and Torrax to examine the feasibility of using a Torrax type system to produce a combustible gas which would be fired into the furnaces at the Watts Bar power plant.

TVA would like Knoxville to be its lead city in the implementation of TVA's master solid waste plan. TVA would like to finance, construct and operate a resource recovery system for the city.

ACTIVITY REPORT

Project Description

LOCATION:	Lane County, Oregon
EPA CONTACT:	Steven Levy
PROJECT CONTACT:	Bruce Bailey Solid Waste Division County Annex Building 135 East 6th Avenue Eugene, Oregon 97401 (503) 687-4119
PROJECT TYPE:	Solid waste as a fuel in an existing, municipally-owned steam boiler. Boiler currently uses wood waste to produce steam for a district heating system.
TONS/DAY:	600-1000
CAPITAL COST:	$1.4 million.
METHOD OF FINANCING:	General obligation bonds-already have voter approval for up to $3.5 million.
CONTRACTOR:	Preliminary design-Wilsey and Ham. Plant will be contracted out as a total system for construction/engineering.

Project Status

No decision has been made yet to implement the system. The Eugene Water and Electric Board is very much in favor of the system and is currently considering what type of modifications would be best. Options include upgrading an existing boiler, adding a new boiler to the existing plant, or building an entirely new plant. Burn tests using shredded solid waste were conducted in July and October, 1974.

ACTIVITY REPORT

Project Description

LOCATION:	Lexington, Kentucky
EPA CONTACT:	Richard E. Hopper
PROJECT CONTACT:	Mr. William Hoskins City Commissioner City Hall Walnut Street Lexington, Kentucky 40503 (606) 255-5631
PROJECT TYPE:	Waterwall incineration to produce steam for district heating.
TONS/DAY:	1000
CAPITAL COST:	$15.5 million.
METHOD OF FINANCING:	Municipal revenue bonds.
CONTRACTOR:	Proctor-Davis & Ray Consulting Engineers

Project Status

The City completed a $50,000 feasibility study in early 1974, and is now finalizing a $110,000 design study. The City expects to solicit bids for construction in early 1975. Initially, three potential steam markets were considered: (1) the downtown area; (2) the campus of the University of Kentucky; and (3) the city's industrial park. The decision was finally made to locate adjacent to the industrial park so as to maintain a continuous load on the plant and thus achieve a greater plant efficiency. Thus far, the City has received eight letters of intent from industry located within the industrial park to purchase steam. Initially, it is expected that the plant will handle 660 tons per day with a throughput of 1000 tons per day as more markets are obtained.

ACTIVITY REPORT

Project Description

LOCATION:	Lowell, Massachusetts
EPA CONTACT:	Yvonne Garbe
PROJECT CONTACT:	Paul Sheehy, City Manager City Hall Lowell, Massachusetts (617) 454-8821
PROJECT TYPE:	Standard mineral benefication techniques to separate and recover various metals and glass from incinerator residue.
TONS/DAY:	250
CAPITAL COST:	$3.177 million.
METHOD OF FINANCING:	Federal share - $2.384 million. Lowell - 0.178 million. State - 0.615 million.
CONTRACTOR:	Raytheon Service Co. R. Schroeder, Project Manager Burlington, Massachusetts

Project Status

Design and contract preparations completed. When completed, incinerator residue from Lowell and several neighboring communities will be processed in the facility. Using a series of screens, shredders, classifiers and other ore benefication equipment the plant will extract more than 40,000 tons of products from the incinerator residue annually, resulting in revenues exceeding $1.5 million annually.

Construction should begin in Spring 1975 and is projected to be completed by Spring 1976.

ACTIVITY REPORT

Project Description

LOCATION:	Madison, Wisconsin
EPA CONTACT:	Alan Shilepsky
PROJECT CONTACT:	James Retzlaff Engineering Department City-County Building Madison, Wisconsin (608) 266-4091
PROJECT TYPE:	Shredded and classified wastes for energy recovery in Madison Gas and Electric boilers. Ferrous recovery currently underway.
TONS/DAY:	200
CAPITAL COST:	Under study--approximately $3.5 million.
METHOD OF FINANCING:	Probably general obligation bonds.
CONTRACTOR:	Undecided.

Project Status

Madison currently has a shredding and landfilling operation which was initiated under an EPA grant in 1966. The city, at the suggestion of Madison Gas and Electric, entered into a joint study with the utility to investigate the expansion of current activities to include the use of shredded fuel in the utility's boilers. Horner & Shifrin, Inc., was contracted to do the necessary feasibility study.

On the basis of the study, Madison's mayor is having a resolution to build a new resource recovery plant prepared for the City Council's consideration. The question of public versus private operation has not been decided yet, though the city will own the land and building in any case.

The probable design will include primary shredding, secondary shredding, and then air classification. Madison Gas and Electric will utilize two out of its eight boilers for shredded fuel, converted at an approximate cost of $750,000.

ACTIVITY REPORT

Project Description

LOCATION:	Memphis, Tennessee
EPA CONTACT:	Robert Randol
PROJECT CONTACT:	Frank Palumbo City Engineer City of Memphis City Hall 125 North Main Street Memphis, Tennessee 38103 (901) 528-3131
PROJECT TYPE:	Pulped fuel.
TONS/DAY:	600
CAPITAL COST:	$10 million.
METHOD OF FINANCING:	
CONTRACTOR:	Leonard S. Wegman Co., Consulting Engineers

Project Status

Leonard S. Wegman Company has been selected to evaluate the feasibility of a 600 ton per day resource recovery system in which the solid waste will be reduced to a pulp which will be mixed with sewage sludge. This slurry will be pumped 6 miles by pipeline to a drying facility adjacent to the Tennessee Valley Authority's Allan Power Plant. The slurry will be dried in an incinerator which is fueled with a flammable industrial waste. The resultant fluff will be transported pneumatically to the Allan Plant where it will be burned as a supplementary fuel.

ACTIVITY REPORT

Project Description

LOCATION:	Milwaukee, Wisconsin
EPA CONTACT:	Alan Shilepsky
PROJECT CONTACT:	Donald Roethig Deputy Commissioner of Public Works Room 516, Municipal Building Milwaukee, Wisconsin 53202 (414) 278-3302
PROJECT TYPE:	Shredded and classified fuel facility with ferrous metal and corrugated paper recovery.
TONS/DAY:	1000
CAPITAL COST:	$17 million.
METHOD OF FINANCING:	Public improvement bonds.
CONTRACTOR:	Negotiating with Americology.

Project Status

Contracts between the City and Americology, and between Americology and the Wisconsin Electric Power Company, were signed on January 16, 1975.

As a result of new State legislation, the new State authority may eventually take over the Milwaukee plant and integrate it into a state-wide system.

ACTIVITY REPORT

Project Description

LOCATION:	Minneapolis - Saint Paul, Minnesota
EPA CONTACT:	Alan Shilepsky
PROJECT CONTACT:	Maurice Dorton, Director of Governmental Programs Metropolitan Sewer Board 350 Metro Square Building St. Paul, Minnesota 55101 (612) 222-8423
PROJECT TYPE:	Pyrolysis unit to dispose of sewage sludge and to generate activated char and fuels for other Sewer Board uses.
TONS/DAY:	360
CAPITAL COST:	$15 million.
METHOD OF FINANCING:	Primarily Federal construction grant funds.
CONTRACTOR:	Rust Engineering.

Project Status

This project is in the design stage, and grew out of the Twin Cities' Metropolitan Sewer Board's need to dispose of the sludge coming out of their water treatment system. Their plan is to pyrolyze approximately 100 wet tons of sludge and 360 tons of solid waste daily into gas and oil for use in other parts of the system. This will reduce the Board's fuel costs, which currently run about $1 million a year. Other hoped for benefits are activated carbon from the pyrolysis char, also to be used internally in Sewer Board operations, and revenues from the sale of front-end, manually separated steel, aluminum and glass. The system under design will handle only 15 percent of their sludge as they want to test the process before relying upon it entirely.

Other Twin Cities projects are a $75,000 Midwest Research Institute study of regional solid waste management and resource recovery as a basis for the consideration of new solid waste legislation by the Metropolitan Council in 1975, and a $200,000 study to be conducted by Henningson, Durham, and Richardson of resource recovery possibilities for Hennipen County.

ACTIVITY REPORT

Project Description

LOCATION:	Monroe County, New York
EPA CONTACT:	Alan Shilepsky
PROJECT CONTACT:	Harold Christensen Director of Solid Waste Department of Public Works 200 County Office Building Rochester, New York 14614 (716) 454-7200
PROJECT TYPE:	Shredded fuel for supplementary burning in Rochester Gas and Electric Boilers.
TONS/DAY:	2000
CAPITAL COST:	$25 million, not including retrofitting and storage facilities.
METHOD OF FINANCING:	Public improvement bonds plus at least $9 million from the State.
CONTRACTOR:	Raytheon Service Corporation

Project Status

Monroe County's request for proposals was prepared by the consulting engineering firm of Black, Crow and Eidsness and drew upon a market analysis and feasibility study done by Black, Crow and Eidsness's parent company, Hercules. County officials have evaluated the proposals with the assistance of Black, Crow and Eidsness and have tentatively chosen Raytheon. A contract has been negotiated with Raytheon and the County legislature has authorized the County executive to execute the contract.

The proposed design involves two stages of shredding, air classification, and the recovery of ferrous and non-ferrous metals.

ACTIVITY REPORT

Project Description

LOCATION:	Montgomery County, Maryland
EPA CONTACT:	Robert Holloway
PROJECT CONTACT:	F.K. Erickson Office of Environmental Planning Montgomery County Office Building Rockville, Maryland 20850 (301) 279-1316
PROJECT TYPE:	Prepared waste as a supplementary fuel to be used in local utility boiler.
TONS/DAY:	1200
CAPITAL COST:	$16 million.
METHOD OF FINANCING:	General obligation bonds.
CONTRACTOR:	Pope, Evans, and Robbins Consulting Engineers.

Project Status

Based on a feasibility study by Pope, Evans and Robbins, Consulting Engineers, New York, the County Executive recommended and the County Council approved a ten year solid waste management plan calling for a 1200 ton per day county-owned and operated resource recovery system, producing magnetic metals and shredded waste fuel to be used as a supplement to coal in Potomac Electric Power Company's (PEPCO) Dickerson, Maryland plant.

The $16 million for the central processing facility has been approved in the county's budget and will probably be obtained by general obligation bonds. Funding for the $4 million receiving and firing facility at Dickerson has not been yet arranged.

A site selection study identified five candidate sites. The site selection process began with hearings in September, and ended with the selection of a site in November, 1974. This site is now being acquired. Meanwhile, the County is also negotiating with PEPCO as to the details of their contract. PEPCO's boiler that will accept the waste fuel is a new 800 megawatt unit that is scheduled to go into operation in 1982.

ACTIVITY REPORT

Project Description

LOCATION:	Montgomery County (Dayton), Ohio
EPA CONTACT:	David Sussman
PROJECT CONTACT:	Ernest Philpot, Administrator County Sanitary Department Montgomery County Administration Building Dayton, Ohio 45402 (513) 225-4933
PROJECT TYPE:	Investigating the Bureau of Mines process of heavy fraction separation with the use of shredded waste as a fuel.
TONS/DAY:	600
CAPITAL COST:	Approximately $15 million.
METHOD OF FINANCING:	General obligation bonds.
CONTRACTOR:	Not known.

Project Status

In preliminary investigation stage. The County has hired an A&E firm to design an RFP for a shredded fuel system with heavy fraction separation. The RFP will not be offered for a few more months. The County has sent out invitations for bids to upgrade the existing incinerators to enable them to remain in operation until resource recovery facility can be built.

ACTIVITY REPORT

Project Description

LOCATION:	Mt. Vernon, New York
EPA CONTACT:	Steven Levy
PROJECT CONTACT:	Seymour Lefkowitz Intergovernmental Coordinator City Hall Mt. Vernon, New York (914) 668-0737
PROJECT TYPE:	Gas Pyrolysis
TONS/DAY:	400
CAPITAL COST:	N/A
METHOD OF FINANCING:	N/A
CONTRACTOR:	Union Carbide (Proposed)

Project Status

Mt. Vernon, as part of the Westchester County, New York plan, intends to build a 400 ton per day Union Carbide Purox system which will serve Mt. Vernon and the communities of North Pelham, Pelham and Pelham Manor. The gas produced will be used to generate electricity which will be sold to Consolidated Edison Company.

ACTIVITY REPORT

Project Description

LOCATION:	Nashville, Tennessee
EPA CONTACT:	Steven Levy
PROJECT CONTACT:	Carl Avers, General Manager Nashville Thermal Transfer Corporation 110 First Avenue, South Nashville, Tennessee 37201 (615) 255-1460
PROJECT TYPE:	Waterwall incineration to produce steam for district heating and cooling.
TONS/DAY:	720
CAPITAL COST:	$18.5 million, including complete steam distribution system.
METHOD OF FINANCING:	Thirty year revenue bonds.
CONTRACTOR:	I.C. Thomasson & Associates - design engineers.

Project Status

Nashville Thermal Transfer Corporation is a non-profit public authority, created by the City but operated independently of the City. The project was initiated originally as a fossil-fuel-fired steam distribution system in conjunction with an ongoing urban renewal program. The use of solid waste as the primary fuel was added to the project after the steam market was assured.

The plant has been operating, but throughput has been limited because of the inability of air pollution control equipment (scrubbers) to control emissions at full load. New air pollution control equipment is scheduled to be installed in 1975, thus permitting operation at full load. Plant is meeting its obligations for steam and chilled water by burning fossil fuel.

New steam contracts continue to increase the plant's load. In order to meet these increasing contract demands, Nashville Thermal is considering expanding the size of its present facility.

ACTIVITY REPORT

Project Description

LOCATION:	New Britain, Connecticut
EPA CONTACT:	Robert Randol
PROJECT CONTACT:	Richard Chase CRRA; Connecticut Resources Recovery Authority 60 Washington Street Suite 1305 Hartford, Connecticut 06106 (203) 549-6390
PROJECT TYPE:	Prepared waste as a supplementary fuel.
TONS/DAY:	1800
CAPITAL COST:	$22 million.
METHOD OF FINANCING:	Revenue bonds.
CONTRACTOR:	CEA (Combustion Equipment Associates, Inc.)

Project Status

CEA proposes to produce Eco-Fuel II for the Wallingford power plant (city owned). The waste fuel will reportedly be mixed with fuel oil and fired in combination into the existing boiler. (Ability of Wallingford plant to accept large amounts of fuel unknown to EPA). A contract has not yet been signed between any of the parties. After Bridgeport, New Britain will be the second project to be implemented by the Connecticut Resources Recovery Authority.

ACTIVITY REPORT

Project Description

LOCATION:	New Orleans, Louisiana
EPA CONTACT:	Yvonne Garbe
PROJECT CONTACT:	Frank Bernheisel National Center for Resource Recovery, Inc. 1211 Connecticut Avenue, N.W. Washington, D.C. 20036 (202) 223-6154
PROJECT TYPE:	Materials Recovery
TONS/DAY:	650
CAPITAL COST:	$5.7 million.
METHOD OF FINANCING:	Private (Waste Management, Inc.)
CONTRACTOR:	Waste Management, Inc.

Project Status

City has given final approval to a contract with Waste Management to construct, own, and operate a facility which will recover glass, ferrous and nonferrous metals, and paper from the solid waste stream. System was designed by the National Center for Resource Recovery, who will act as Technical Advisor to the City and will monitor the construction and operation of the facility. Site preparation was started on November 18 and the ground breaking ceremony was held on November 26, 1974. The detailed design work is being done by Waldeman S. Nelson Co., and the plant start up is scheduled for Spring 1976.

ACTIVITY REPORT

Project Description

LOCATION:	New York, New York
EPA CONTACT:	David Sussman
PROJECT CONTACT:	Leonard F. O'Reilly Director, Solid Waste Task Force 51 Chambers Street New York, New York (212) 566-0922
PROJECT TYPE:	Shredded fuel.
TONS/DAY:	1500
CAPITAL COST:	
METHOD OF FINANCING:	50 percent State funds. 50 percent City funds. Consolidated Edison finances their plant modifications.
CONTRACTOR:	Horner & Shifrin, Inc. for feasibility study.

Project Status

City is finalizing contract with Horner & Shifrin to design a 1500 ton per day shredded fuel plant in conjunction with Con Ed's Arthur Kill plant, unit #20. The plant will be simlar to the St. Louis demonstation plant. Construction will not begin until Con Ed is financially able to pay for the required modifications to its boilers. The plant will demonstrate the feasibility of shredded fuel in the New York City area.

Plans for a new 700 megawatt plant in the City that will burn 1600 tons per day are being formulated by the New York Power Authority. Implementation date for the plan is unknown.

ACTIVITY REPORT

Project Description

LOCATION:	Onondaga County, New York
EPA CONTACT:	Richard Hopper
PROJECT CONTACT:	Charles R. Stoffel Federal Aid Representative Onondaga County, New York Box 23324 L'Enfant Plaza Station Washington, D.C. 20024 (202) 554-2494
PROJECT TYPE:	Waterwall incineration to produce steam for district heating and cooling.
TONS/DAY:	1000
CAPITAL COST:	$21,503,900
METHOD OF FINANCING:	Municipal bonds; bond anticipation notes; State grant.
CONTRACTOR:	Carrier Corporation.

Project Status

Onondaga County owns and operates a mid-town district heating and cooling plant which supplies steam and chilled water to various County and City buildings in Syracuse. A few blocks away is a district heating and cooling plant owned by Syracuse University serving many campus buildings, several hospitals, and a housing project. In May 1974, the County and University entered into a contract with Carrier Corporation to conduct a feasibility study of the possibilities of converting the two plants to the use of municipal solid waste as a fuel.

To assist in the study, Carrier Corporation engaged the services of Roisson and Woese, Consulting Engineers; I.C. Thomasson & Associates, Consulting Engineers; and Edward Joe Company, Mechanical Contractors. The completed study recommended that the existing county steam plant be phased out and that a new steam plant using solid waste as a fuel be built adjacent to the existing university steam plant site. The facility would have the capacity to incinerate most of the 1,200

tons of solid waste produced by Onondaga County's half million residents each day and would recover energy from this waste in the form of steam. The existing university steam plant would be retained as a standby unit, while the new plant would be designed to burn waste as delivered or to burn fuel that may be produced in the future by a pyrolysis system that would convert waste into gas or oil. The proposed plant will produce 270,000 pounds of steam per hour.

ACTIVITY REPORT

Project Description

LOCATION:	Palmer Township, Pennsylvania
EPA CONTACT:	Steven Levy
PROJECT CONTACT:	H. Robert Daws, Chairman Board of Supervisors Palmer Township Municipal Building 3245 Freemansburg Avenue Easton, Pennsylvania 18042
PROJECT TYPE:	Use of solid waste as a fuel in a cement kiln.
TONS/DAY:	Estimated throughput: 150 tons. Plant capacity: 500 tons.
CAPITAL COST:	$2.8 million
METHOD OF FINANCING:	Fifty percent financing expected from State, rest from township.
CONTRACTOR:	Elo and Rhodes, Inc. - Consulting Engineers

Project Status

The feasibility study has been completed and the Township is moving ahead with implementation. Detailed working drawings have been completed and a permit for the facility has been issued by the State Department of Natural Resources. Bids on major equipment items are due on January 15, 1975. Project financing is still uncertain. The entire system is now estimated to cost $2.8 million. The Township is seeking State legislation that would provide a State grant for a portion of the capital cost and a State loan for another portion, with the remainder financed by the County.

ACTIVITY REPORT

Project Description

LOCATION:	San Diego County, California
EPA CONTACT:	Steven Levy
PROJECT CONTACT:	Case Houson, Director Department of Sanitation & Flood Control 5555 Overland Avenue San Diego, California (714) 565-5329
PROJECT TYPE:	Pyrolysis to produce a liquid fuel.
TONS/DAY:	200
CAPITAL COST:	$6.4 million.
METHOD OF FINANCING:	EPA demonstration grant - $3.5 million County - $2.0 million Garrett Research and Development Company, Inc. $3.5 million.
CONTRACTOR:	Garrett Research and Development Co.

Project Status

Project is in the design stage with construction to begin in early 1975. Garrett has turnkey responsibility for design and construction of the complete facility. The liquid fuel product will be used by the San Diego Gas and Electric Company as a supplement to No. 6 Fuel Oil in an oil fired steam electric power plant. Nearly one barrel of oil is produced from each ton of solid waste. Updated price quotes have been requested for all major equipment items. Orders will be placed as soon as they are received and reviewed - probably by early January.

ACTIVITY REPORT

Project Description

LOCATION:	Saugus, Massachusetts
EPA CONTACT:	Steven Levy
PROJECT CONTACT:	W.C. Stephens Energy Systems Division Wheelabrator-Frye, Inc. 299 Park Avenue New York, New York 10017
PROJECT TYPE:	Waterwall incineration.
TONS/DAY:	1200
CAPITAL COST:	$30 million.
METHOD OF FINANCING:	Private.
CONTRACTOR:	RESCO

Project Status

RESCO (Refuse Energy Systems Company), a joint venture of De Matteo Construction Company and Wheelabrator-Frye, is constructing a water-wall incinerator in Saugus, Massachusetts. The steam generated will be sold to the General Electric Company plant at Lynn, Massachusetts, across the Saugus River. The plant's input refuse will come from some 16 communities north of Boston. The twenty year contract between RESCO and the communities provides for an initial disposal fee of $13 per ton of solid waste.

ACTIVITY REPORT

Project Description

LOCATION:	Seattle, Washington
EPA CONTACT:	Alan Shilepsky
PROJECT CONTACT:	Paul Disario Office of Management and Budget City Hall Seattle, Washington (206) 583-5792
PROJECT TYPE:	Pyrolysis to generate methane gas, followed by chemical processing into methanol or possibly ammonia.
TONS/DAY:	1500
CAPITAL COST:	$56 million (methanol) or $65 million (ammonia).
METHOD OF FINANCING:	N/A
CONTRACTOR:	N/A

Project Status

Mathematical Sciences, Northwest has conducted a feasibility study for the City on pyrolysis to generate methane gas, followed by chemical processing into ammonia.

ACTIVITY REPORT

Project Description

LOCATION:	St. Louis, Missouri
EPA CONTACT:	Robert Holloway
PROJECT CONTACT:	David Klumb Union Electric Company P.O. Box 149 St. Louis, Missouri 63166 (314) 621-3222 Ext. 3175
PROJECT TYPE:	Prepared waste as a supplementary fuel; materials recovery.
TONS/DAY:	8,000
CAPITAL COST:	$70 million.
METHOD OF FINANCING:	Pollution control revenue bond.
CONTRACTOR:	In-house and Horner & Shifrin.

Project Status

Union Electric has been participating since 1969 with the City of St. Louis and EPA in a demonstration project to assess the feasibility of firing prepared waste as supplementary fuel into an existing coal fired utility boiler.

Based on the success of the project to date, Union Electric announced in February, 1974 plans to implement a $70 million 8,000 ton per day program. UE plans to accept raw waste (2,000 tons per day at the Meramec Plant, and 6,000 tons per day at the Labadie Plant) and prepare it for use as fuel. In addition, metals and glass will be recovered.

In September, 1974, UE ordered 11 air classifiers at a cost of over $4 million. In October, UE ordered storage bins at an additional value of over $4 million. Shredder proposals were received in January, 1975, and rail car and transport container proposals are expected to be received in February.

ACTIVITY REPORT

Project Description

LOCATION:	Tennessee Valley Authority
EPA CONTACT:	Harry Butler
PROJECT CONTACT:	Edward Bales Office of Tributary Area Development TVA Knoxville, Tennessee (615) 637-0101 Ext. 2185
PROJECT TYPE:	Fuel recovery throughout Authority's service area. Several processes under consideration.
TONS/DAY:	7400
CAPITAL COST:	$20 million.
METHOD OF FINANCING:	TVA debt financed.
CONTRACTOR:	Several.

Project Status

TVA is involved in all phases of development in area served by it. This covers parts of 7 states and a population of 7 million. About 8 million tons per year of solid waste are generated in the area. TVA provides technical assistance to cities and counties throughout the region; it does not have grants or other means of fiscal support. Staff is developing a plan for solid waste resource recovery that would handle most of the waste generated within the region and its fringe areas. TVA foresees installing refuse processing plants at a half-dozen or so of its coal fired power plants. The total system as envisioned by TVA would be able to handle 7400 tons per day of solid waste and would provide 7 percent of TVA's total energy needs. TVA uses 35 million tons per year of coal; hence its plants would realize a savings of 2 million tons per year of coal (75 percent of TVA's power is supplied by coal fired boilers). The system would consist of the following plants.

Chattanooga-Knoxville - a 2000 ton per day facility at Watts-Bar power plant would use a Torrax system to produce combustible gas and would rail haul refuse to the plant. The plant would also recover aluminum, glass, and ferrous metal.

Tennessee Valley Authority
(continued)

Memphis - 600 ton per day supplementary fuel plant to input into TVA's Allan power plant.

Asheville - 600 ton per day plant.

Paducah - 1000 ton per day plant.

Muscle Shoals - 1000 ton per day plant.

Nashville - Would be served by a facility in nearby Huntington, which would be the first TVA facility constructed. Would supplement the existing Nashville Thermal plant.

TVA's timetable calls for implementation during 1975.

ACTIVITY REPORT

Project Description

LOCATION:	Washington, D.C.
EPA CONTACT:	Robert Holloway
PROJECT CONTACT:	Clark W. Hand Environmental Planning Metropolitan Washington Council of Governments 1225 Connecticut Avenue, N.W. Washington, D.C. (202) 223-6800 Ext. 330
PROJECT TYPE:	Waste as fuel - probably to PEPCO, but looking for other fuel users.
TONS/DAY:	650-1300
CAPITAL COST:	N/A
METHOD OF FINANCING:	N/A
CONTRACTOR:	N/A

Project Status

Washington, D.C., and Fairfax, Arlington, and Alexandria counties in Northern Virginia are pursuing a regional approach to resource recovery. The project is being conducted by the Metropolitan Council of Governments (COG). The COG has contracted with the National Center for Resource Recovery to evaluate markets for recovered materials and to conduct a feasibility study of a facility for materials recovery and the processing of solid waste into a supplementary fuel. The COG is also in the preliminary stages of negotiation with the Potomac and Electric Power Company to purchase the fuel.

The National Center for Resource Recovery's report was delivered to the COG in January. The District of Columbia plans to prepare a budget request for fiscal year 1976 funds to develop an engineering design and recommend equipment specifications.

ACTIVITY REPORT

Project Description

LOCATION:	Westchester County, New York
EPA CONTACT:	Steven Levy
PROJECT CONTACT:	Robert Dennison Commissioner of Public Works County Office Building White Plains, New York (914) 682-2537
PROJECT TYPE:	County-wide.
TONS/DAY:	400
CAPITAL COST:	$105 million.
METHOD OF FINANCING:	N/A
CONTRACTOR:	N/A

Project Status

County Plan calls for upgrading 3 or 4 existing incinerators and installing a Bureau of Mines incinerator recovery system, for building a thermal reduction facility at the County's Grasslands Reservation, for closing the Croton Landfills and for building a 400 ton per day Union Carbide Purox System in Mt. Vernon. Under the plan, the County is divided into eight waste sheds for solid waste management and resource recovery, and the County assumes responsibility for solid waste disposal.

ACTIVITY REPORT

Project Description

LOCATION:	Wilmington, Delaware
EPA CONTACT:	Robert Holloway
PROJECT CONTACT:	Pasquale S. Canzano Department of Natural Resources and Environmental Control State of Delaware Dover, Delaware 19901 (302) 678-4781
PROJECT TYPE:	Prepared solid waste as a supplementary fuel to be used in oil fired utility boiler; sewage sludge will be processed; subsystems will include composting, pyrolysis, and materials recovery (ferrous, aluminum, glass).
TONS/DAY:	500 (One shift).
CAPITAL COST:	$20 million.
METHOD OF FINANCING:	State general obligation bonds; EPA grant.
CONTRACTOR:	Full-service contract to be bid competitively with RFP.

Project Status

EPA awarded a $9 million resource recovery demonstration grant to the State of Delaware in October, 1972. As a result of negotiations between EPA and Delaware over conditions of the grant agreement, Delaware accepted EPA's recommendation not to compost the waste fuel to be burned in a Delmarva Power and Light Co. oil-fired boiler. Resolution of conditions and paper work required to amend project have delayed project about two years.

Delaware will apply for an EPA Step III Water Construction Grant for those facilities that handle sludge. Delaware plans to ask for $4-5 million in EPA water funds.

Delaware hopes to develop an RFP package by early 1975. A contract should be signed by January, 1976 to design, construct, and operate the facility.

ACTIVITY REPORT

Project Description

LOCATION:	State of California
EPA CONTACT:	Richard Hopper
PROJECT CONTACT:	Albert A. Marino, Executive Director California State Solid Waste Management Board Rm. 1335, Resources Building 1416 9th Street Sacramento, California 95814 (916) 322-3330
PROJECT TYPE:	Development of State plan.
TONS/DAY:	N/A
CAPITAL COST:	N/A
METHOD OF FINANCING:	N/A
CONTRACTOR:	N/A

Project Status

In 1972 the California State Legislature enacted the Solid Waste Management and Resource Recovery Act which established a solid waste management board and required all counties to adopt solid waste management plans to be approved by the State Board placing priority upon resource recovery.

In implementing this priority on resource recovery, the Act mandates the Solid Waste Management Board to develop a State Resource Recovery Plan considering the following elements:

1. A State-directed R&D program.
2. A demonstration program for resource recovery.
3. Changes in product characteristics to encourage source reduction.
4. The use of State procurement practices to induce a market demand.
5. Incentives, including State grants, loans and other assistance, along with disincentives.

State of California
(continued)

6. Effects of existing public policies.

7. Disposal taxes on consumer goods.

8. State pilot resource recovery projects.

To fulfill this mandate, the State Board requested its advisory council on resource recovery to prepare a draft State resource recovery plan. This has been completed and has been presented to the public at a series of public hearings. As a consequence, the State Solid Waste Management Board recently adopted a policy on resource recovery and is seeking additional implementing legislation.

ACTIVITY REPORT

Project Description

LOCATION:	State of Connecticut
EPA CONTACT:	Robert Randol
PROJECT CONTACT:	Mr. Joseph L. Boren, Director Solid Waste Management Programs Department of Environmental Protection State of Connecticut State Office Building, Room 248 Hartford, Connecticut 06115 (203) 566-3672
PROJECT TYPE:	Development of State authority.
TONS/DAY:	
CAPITAL COST:	
METHOD OF FINANCING:	Revenue bonds.
CONTRACTOR:	Garrett Research and Development Company (Bridgeport facility) Combustion Equipment Associates (Greater Hartford facility)

Project Status

As a result of a comprehensive State plan developed by the Connecticut Department of Environmental Protection, the State legislature created the Connecticut Resources Recovery Authority (CRRA). The Authority is carrying out implementation of the plan, which calls for the construction by 1985 of 10 resource recovery facilities which will process 84 percent of the State's waste. CRRA has been given $250 million bonding authority for facility construction. During formulation of the plan, the U.S. Environmental Protection Agency funded a study which gave the State an independent commentary on the proposed legislation, gave a framework for evaluation of proposed projects, and made recommendations for the organization and management of the Authority as well as on aspects of financing and system incentives. Contracts for the first two facilities have been awarded to Garrett Research and Development Company for a resource recovery plant in Bridgeport and to Combustion Equipment Associates for a plant in New Britain, which will serve several communities in the Greater Hartford area. Unique features of the Connecticut plan include:

Voluntary Participation. Communities are not required to utilize the services of the CRRA facilities, but instead may decide to do so on an economical basis.

Rate Setting. There is no regulation of the rates charged to the communities. However, since the system is voluntary, CRRA is forced to be competitive with other means of disposal.

Private Sector Involvement. Since CRRA is limited to 30 employees, the private sector will be utilized for design, construction, and operation of facilities.

ACTIVITY REPORT

Project Description

LOCATION:	State of Florida
EPA CONTACT:	Richard Hopper
PROJECT CONTACT:	J. Benton Druse Solid Waste Planning Department of Pollution Control 2562 Executive Center Circle, E. Tallahassee, Florida 32301 (904) 488-1345
PROJECT TYPE:	Development of State plan.
TONS/DAY:	N/A
CAPITAL COST:	N/A
METHOD OF FINANCING:	N/A
CONTRACTOR:	N/A

Project Status

Florida recently enacted legislation creating a Resource Recovery and Management Advisory Council, and mandated that it develop a resource recovery program for the State. While the State Board of Pollution Control is responsible for adopting the recommended program by rule, the Resource Recovery and Management Advisory Council has veto powers over any provisions of the program that it objects to. By law, the Board of Pollution Control must adopt a resource recovery and management program for the State within one year after the "Florida Resource Recovery and Management Act" takes effect and, in doing so, must hold public hearings throughout the State.

To implement the adopted program, the law states that specific powers of the Department of Pollution Control shall be to:

(1) Provide technical assistance to counties and municipalities.

(2) Charge user fees.

(3) Acquire personal or real property.

(4) Acquire, construct, and operate resource recovery facilities.

Furthermore, the law states that within two years after the department adopts the State resource recovery and management program, all counties and municipalities shall adopt, either solely or in cooperation with other counties and municipalities, a local resource recovery and management program which shall be approved by the department, and shall implement the provisions of the State program.

Thus far, the Resource Recovery and Management Advisory Council is in the process of selecting an executive director and has been holding monthly meetings to determine how it shall proceed in developing the State plan.

ACTIVITY REPORT

Project Description

LOCATION:	State of Hawaii
EPA CONTACT:	Richard Hopper
PROJECT CONTACT:	Judith Blatchford State Office of Environmental Quality 550 Halekauwila Street, Room 301 Honolulu, Hawaii (808) 548-6915
PROJECT TYPE:	Development of State plan.
TONS/DAY:	N/A
CAPITAL COST:	N/A
METHOD OF FINANCING:	N/A
CONTRACTOR:	N/A

Project Status

In 1971, the Hawaii State Legislature enacted legislation calling for the development of an Hawaii State Plan for Solid Waste Recycling. This plan was completed in 1973. Responding to one of the plan's recommendations, the State has set aside land in the harbor area of Honolulu as a centralized recycling industrial park. In addition, the State has invested in the design of a plant to convert organics to oil, for which a pilot plant is expected to be constructed sometime in 1976. Meanwhile, pending before the legislature are still several pieces of legislation, including: a bill to create a Hawaii Waste Recovery Authority, tax incentives for solid waste recycling facilities, and bottle legislation. Finally, the State is maintaining an on-going inventory of solid waste generated and markets for recovered materials while sponsoring small-scale demonstration projects.

ACTIVITY REPORT

Project Description

LOCATION:	State of Illinois
EPA CONTACT:	Harry Butler
PROJECT CONTACT:	Patrick Lynch Division of Land Pollution Control Illinois Environmental Protection Agency 2200 Churchill Drive Springfield, Illinois 62706 (217) 782-6760
PROJECT TYPE:	Solid waste grant program.
TONS/DAY:	N/A
CAPITAL COST:	$6 million grant funding.
METHOD OF FINANCING:	State appropriation.
CONTRACTOR:	N/A

Project Status

The State Solid Waste Office is staffing up for a grant program of $6 million for solid waste planning and resource recovery demonstrations. The State will produce a policy planning document which will define the State's role in resource recovery. The policy will then be implemented in 1976. In the interim, a grant is to be given to the City of Springfield for a design study of a supplementary fuel system for the City Water, Light and Power Company, a municipally owned utility.

ACTIVITY REPORT

Project Description

LOCATION:	State of Maryland
EPA CONTACT:	Harry Butler
PROJECT CONTACT:	Cliff Willey Chief of Solid Waste Services Maryland Environmental Services Tawes State Office Building Annapolis, Maryland 21401 (301) 267-5666
PROJECT TYPE:	State grant and loan program.
TONS/DAY:	N/A
CAPITAL COST:	N/A
METHOD OF FINANCING:	State appropriation.
CONTRACTOR:	N/A

Project Status

The Maryland Environmental Services (MES) can provide both grants and loans for resource recovery facilities. Four million dollars of the matching funds for the U.S. Environmental Protection Agency's $16 million demonstration in Baltimore was provided by MES. In addition, MES is funding, in a joint venture with Baltimore County, the Baltimore County Solid Waste Disposal System and Reclamation Project. Phase I of this project will consist of shredding followed by magnetic separation. The ferrous fraction recovered will be sold to the detinning market. The remainder is to be landfilled. MES is spending $300,000 on market and product development. Phase II of the project will consist of recovery of the fiber (either as fuel or fiberboard), glass and other heavy fraction as their markets develop.

ACTIVITY REPORT

Project Description

LOCATION:	Commonwealth of Massachusetts
EPA CONTACT:	Yvonne Garbe
PROJECT CONTACT:	Alden Cousins, Director Bureau of Solid Waste Disposal Massachusetts Department of Public Works 100 Nashua Street Boston, Massachusetts 02114 (617) 727-4293
PROJECT TYPE:	Development of State plan.
TONS/DAY:	N/A
CAPITAL COST:	N/A
METHOD OF FINANCING:	N/A
CONTRACTOR:	N/A

Project Status

The Commonwealth of Massachusetts is implementing a state-wide resource recovery plan. The plan features a system of privately financed, privately owned, State controlled resource recovery facilities. The State has issued a "Request for Proposals" as a first step towards implementing a resource recovery facility in the Greater Lawrence area.

A bidders conference was held on January 11, 1975 with proposals to be returned for review by March 18, 1975.

ACTIVITY REPORT

Project Description

LOCATION:	State of Michigan
EPA CONTACT:	Richard E. Hopper
PROJECT CONTACT:	Fred Kellow, Chief Solid Waste Management Division Environmental Protection Branch Department of Natural Resources 3500 Logan Street Lansing, Michigan 48914 (517) 373-6620
PROJECT TYPE:	Development of State plan.
TONS/DAY:	N/A
CAPITAL COST:	N/A
METHOD OF FINANCING:	N/A

Project Status

Both the State House and Senate recently unanimously passed legislation to establish a State program for resource recovery. The Governor has signed the legislation, and it became effective January 1, 1975. The legislation primarily does three things: (1) it mandates the State Department of Natural Resources to develop a State resource recovery plan by January, 1978, and then to update the plan yearly; (2) it establishes a State Resource Recovery Advisory Commission and requires it to formally adopt the State plan; and (3) gives the Department authority to construct and operate resource recovery facilities, issue revenue bonds, contract for services, charge user fees, and make loans to local government.

ACTIVITY REPORT

Project Description

LOCATION:	State of Minnesota
EPA CONTACT:	Harry Butler
PROJECT CONTACT:	Robert Silvagni Minnesota Pollution Control Agency Division of Solid Waste 1935 West County Road, B-2 Roseville, Minnesota 55113 (612) 636-5740
PROJECT TYPE:	State grant program.
TONS/DAY:	N/A
CAPITAL COST:	$3.5 million in grant funds.
METHOD OF FINANCING:	State appropriation.
CONTRACTOR:	N/A

Project Status

A $3.5 million solid waste disposal and resource recovery grant program is being implemented by the Minnesota Pollution Control Authority. To be eligible for State assistance, a program or project must be consistent with all State approved county and regional solid waste management plans of affected counties and must comply with all applicable local, State, and Federal regulations. Grant-in-aid payments made by the State cannot exceed 50 percent of the total cost of the program or project funded. Resource recovery grants to date have been for the purpose of conducting planning and feasibility studies.

ACTIVITY REPORT

Project Description

LOCATION:	State of New York
EPA CONTACT:	Harry Butler
PROJECT CONTACT:	David Mafrizi, Director Bureau of Resource Recovery Division of Solid Waste Management New York State Department of Environmental Conservation 50 Wolf Road Albany, New York 12201 (518) 457-3199
PROJECT TYPE:	State grant program.
TONS/DAY:	N/A
CAPITAL COST:	$175 million for solid waste disposal and resource recovery grants to local government.
METHOD OF FINANCING:	General obligation bond.
CONTRACTOR:	N/A

Project Status

New York State voters have approved a $1.1 billion Environmental Bond, which includes $175 million for solid waste disposal and resource recovery facilities. The regulations provide up to 25 percent State funding for disposal projects and up to 50 percent for resource recovery projects, thus increasing the incentive for resource recovery. In addition, the regulations provide that to be eligible for State assistance, a project must be consistent with a comprehensive solid waste management plan. Comprehensive plans must: (1) assure that all municipalities within a region will be served by a solid waste recovery and management system; (2) provide for intermunicipal cooperation; (3) define solid waste collection service areas and the type of service to be provided; (4) utilize modern technology to best meet local needs and optimize opportunities for resource recovery; and (5) provide for phased implementation of proposed systems to meet short range and long range needs. To date, $116 million has been set aside for specific resource recovery projects. Actual grant awards will be made to the specific communities upon State approval of the contractor's bid price for a facility.

ACTIVITY REPORT

Project Description

LOCATION:	State of Ohio
EPA CONTACT:	Richard Hopper
PROJECT CONTACT:	Donald Day Division of Waste Management & Engineering Ohio Environmental Protection Agency P.O. Box 1049 Columbus, Ohio 43216 (614) 466-8934
PROJECT TYPE:	Development of State plan.
TONS/DAY:	N/A
CAPITAL COST:	N/A
METHOD OF FINANCING:	N/A
CONTRACTOR:	N/A

Project Status

A task force of the Ohio Commission on Local Government Services recently recommended that the State both establish a State policy on resource recovery for operating programs of State government, and Ohio Resource Recovery Authority to finance and operate actual systems on a permissive-use basis. To implement its recommendations, the task force called for a $1.5 million study to design a specific State program. As a follow-up to this recommendation, the Ohio Environmental Protection Agency has developed an in-house "action plan" and has formed a State advisory group to provide on-going guidance as to its implementation. Within this action plan, it is recommended that the State design, construct, and operate resource recovery facilities under the existing powers of the Ohio Water Development Authority to both operate solid waste systems and to make loans and grants to governmental agencies for the acquisition or construction of solid waste projects (Section 6123, Ohio Revised Code). The Ohio Water Development Authority will go seeking an appropriation for such purposes in the coming legislative session.

ACTIVITY REPORT

Project Description

LOCATION:	Commonwealth of Pennsylvania
EPA CONTACT:	Richard Hopper
PROJECT CONTACT:	William C. Bucciarelli, Director Division of Solid Waste Management Department of Environmental Resources 8th Floor Fulton Building P.O. Box 2063 Harrisburg, Pennsylvania 17120 (717) 787-7381
PROJECT TYPE:	State loan program.
TONS/DAY:	N/A
CAPITAL COST:	N/A
METHOD OF FINANCING:	N/A
CONTRACTOR:	N/A

Project Status

In 1974 the Pennsylvania State Legislature enacted the Pennsylvania Solid Waste Resource Recovery Development Act creating a State loan program for local resource recovery projects. Requirements of the Act are that in reviewing applications for loans, the Department of Environmental Resources shall: (1) consider the amounts of polluting substances treated and/or eliminated; (2) the overall environmental benefits to be accrued as a result of the projects; (3) the amount of populations served; and (4) the extent of resource recovery to be included. Furthermore, the law requires that no loan shall be made to any local government which is not a part of a department approved local solid waste management plan. Twenty million dollars was appropriated for the purposes of the Act. At present, the Department of Environmental Resources is drafting rules and regulations to implement the loan program.

ACTIVITY REPORT

Project Description

LOCATION:	State of Rhode Island
EPA CONTACT:	David Sussman
PROJECT CONTACT:	John Quinn, Jr., Chief Division of Solid Waste Management State Health Department 204 Health Building Davis Street Providence, Rhode Island 02908 (401) 277-2808
PROJECT TYPE:	Development of State plan.
TONS/DAY:	N/A
CAPITAL COST:	N/A
METHOD OF FINANCING:	N/A
CONTRACTOR:	N/A

Project Status

The Rhode Island legislature has created the Rhode Island Solid Waste Management Corporation. The legislation which created the Corporation is a result of the State Solid Waste Management Plan and is modeled after the Connecticut Resource Recovery legislation. Environmental Protection Agency, through a grant to Rhode Island, assisted in the preparation of the State Plan.

As outlined in the legislation, details of the State program are:

(1) The corporation will prepare and implement a functional level plan for an integrated statewide system of solid waste management facilities;

(2) Municipal participation in the statewide system of solid waste management facilities that will be developed by the corporation will be on a voluntary basis.

(3) The corporation will make its waste management facilities available under contract to any municipality, institution, or person at reasonable fees established by the corporation; and,

(4) Any revenues received by the corporation shall be used by said corporation to provide the financial support that is required to maintain financial solvency.

Since a bond referendum to fund the corporation failed in last year's elections, the State is presently exploring other alternatives for providing the necessary start-up funding for the corporation.

Although there is no funding for the corporation, the Advisory Board has been appointed and is operating, with the expectation that staff will be hired this Spring.

ACTIVITY REPORT

Project Description

LOCATION:	State of Tennessee
EPA CONTACT:	Harry Butler
PROJECT CONTACT:	Tom Tiesler, Director Solid Waste Management Section Division of Environmental Sanitation Bureau of Environmental Health Services State Department of Public Health Capitol Hill Building, Room 320 Nashville, Tennessee 37219 (615) 741-3424
PROJECT TYPE:	Loan program.
TONS/DAY:	N/A
CAPITAL COST:	$10 million resource recovery loan program.
METHOD OF FINANCING:	State loans.
CONTRACTOR:	N/A

Project Status

The State Legislature has authorized a $10 million resource recovery loan program. Regulations are being drafted for the implementation of this program with assistance from the U.S. Environmental Protection Agency. In addition, the Tennessee Municipal League (TML) has proposed a State resource recovery plan - with $3.5 million funding suggested.

ACTIVITY REPORT

Project Description

LOCATION:	State of Vermont
EPA CONTACT:	Yvonne Garbe
PROJECT CONTACT:	Richard Valentinetti Air & Solid Waste Programs Protection Division Agency of Environmental Conservation P.O. Box 489 Montpelier, Vermont 05602 (802) 828-3395
PROJECT TYPE:	Development of State plan.
TONS/DAY:	N/A
CAPITAL COST:	N/A
METHOD OF FINANCING:	N/A
CONTRACTOR:	N/A

Project Status

The State solid waste plan calls for mandatory separation of wastes by the householder and for the construction of four regional resource recovery facilities. The proposed legislation to put this plan into effect failed to pass in 1973, and again in 1974. The State is currently drafting more general legislation to be introduced in the legislature in 1975 that would respond to criticisms of previous legislation by being less specific, and giving greater flexibility to the Agency of Environmental Conservation to develop the details.

ACTIVITY REPORT

Project Description

LOCATION:	State of Washington
EPA CONTACT:	Richard Hopper
PROJECT CONTACT:	Robert Martin Solid Waste Management Washington State Department of Ecology Olympia, Washington 98505 (206) 753-6883
PROJECT TYPE:	Grant and loan program.
TONS/DAY:	N/A
CAPITAL COST:	$30 million in grants and loans.
METHOD OF FINANCING:	State appropriation.
CONTRACTOR:	N/A

Project Status

The State of Washington is already administering a six year $30 million grant and loan program for resource recovery and solid waste disposal. At present, monies given for resource recovery have either been for planning or for small-scale materials recovery demonstrations.

ACTIVITY REPORT

Project Description

LOCATION:	State of Wisconsin
EPA CONTACT:	Richard Hopper
PROJECT CONTACT:	Warren Porter Wisconsin Solid Waste Recycling Authority c/o Department of Administration 1 West Wilson Street Madison, Wisconsin 53702 (608) 266-2686
PROJECT TYPE:	Development of State plan.
TONS/DAY:	N/A
CAPITAL COST:	N/A
METHOD OF FINANCING:	Revenue bonds.
CONTRACTOR:	N/A

Project Status

The State of Wisconsin has recently created a Solid Waste Recycling Authority with powers to plan, design, finance, construct, acquire, lease, contract, operate, and maintain resource recovery facilities within designated recycling regions. The types of resource recovery facilities to be built will be determined by the Authority based largely on information contained in the two year study which recommended formation of the Authority. Three initial recycling regions, encompassing 11 counties have been established. Funds have been appropriated for the Authority's initial start up costs, and the law establishes bonding authority for capital costs. The authority is now being formed. Unique features of the Wisconsin plan include:

(1) Mandatory Compliance. In order to insure a large waste stream for economies of scale, to reduce risks for investors, and to provide a continuous supply of materials for their markets, the Authority has control of all waste collected within the designated regions and must approve all disposal or recovery facilities.

(2) Cost Guarantees. During the first three years of operation, rates and charges for approved facilities may be reduced by the Authority, but they may not be increased.

(3) Site Purchase. The Authority must purchase, given certain provisions, operating municipal disposal sites that are offered for sale by the municipality.

(4) Private Sector Involvement. To insure the use of the private sector, the Authority is limited to 40 employees.

APPENDIX I

COMMUNITIES RECOVERING ONLY FERROUS METAL, 1974

Ansonia, CT

Atlanta, GA

College Park, MD

Great Falls, MT

Harrisburg, PA

Los Gatos, CA

Louisville, KY

Madison, WI

Menlo Park, CA

New Castle County, DE

Sacramento, CA

Sacramento County, CA

San Francisco, CA

APPENDIX II

ABBREVIATIONS USED IN REPORT

A&E -- Architectural and engineering firm

BFI -- Browning-Ferris Industries

CEA -- Combustion Equipment Associates, Inc.

COG -- Council of Governments

CRRA -- Connecticut Resources Recovery Authority

EPA -- U.S. Environmental Protection Agency

HMDC -- Hackensack Meadowlands Development Commission

MES -- Maryland Environmental Services

N/A -- Not applicable

NCRR - National Center for Resource Recovery

PEPCO -- Potomac Electric Power Company

PSEG - Public Service Electric and Gas Company

RESCO -- Refuse Energy Systems Company

R&D -- Research and development

RFP -- Request for proposals

TVA -- Tennessee Valley Authority

UE -- Union Electric Company

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